September 24-Month Study
Date: September14, 2020

From: Water Resources Group, Salt Lake City
To: All Colorado River Annual Operating Plan (AOP) Recipients

Current Reservoir Status

Reservoir	August Inflow (unregulated) (acre-feet)	Percent of Average (%)	September 14, Midnight Elevation (feet)	September 14, Midnight Reservoir Storage (acre-feet)
Fontenelle	41,400	54	6,497.16	277,100
Flaming Gorge	35,100	40	6,026.59	3,219,300
Blue Mesa	26,000	41	7,475.13	471,100
Navajo	-15,000	-33	6,045.57	1,174,400
Powell	-20,000	-4	3,598.03	11,563,100

Expected Operations

The operation of Lake Powell and Lake Mead in this September 2020 24-Month Study is pursuant to the December 2007 Record of Decision on Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations of Lake Powell and Lake Mead (Interim Guidelines), and reflects the 2020 Annual Operating Plan (AOP) and Draft 2021 AOP. Pursuant to the Interim Guidelines, the August 2019 24-Month Study projections of the January 1, 2020, system storage and reservoir water surface elevations set the operational tier for the coordinated operation of Lake Powell and Lake Mead during 2020.

Consistent with Section 6.B of the Interim Guidelines, the Lake Powell operational tier for water year 2020 is the Upper Elevation Balancing Tier. With an 8.23 million acre-feet (maf) release from Lake Powell in water year 2020, the April 2020 24-Month Study projected the end of water year elevation at Lake Powell to be above 3,575 feet and the end of water year elevation at Lake Mead to be above 1,075 feet. Therefore, in accordance with Section 6.B.1 of the Interim Guidelines, Lake Powell will continue to release 8.23 maf through the remainder of water year 2020.

Consistent with Section 2.B.5 of the Interim Guidelines, the Intentionally Created Surplus (ICS) Surplus Condition is the criterion governing the operation of Lake Mead for calendar year 2020. In addition, Section III.B of Exhibit 1 to the Lower Basin Drought

Contingency Plan (DCP) Agreement is also governing the operation of Lake Mead in calendar year 2020.

The August 2020 24-Month Study projected the January 1, 2021 Lake Powell elevation to be below the 2021 Equalization Elevation of 3,659 feet and above elevation 3,575 feet. Consistent with Section 6.B of the Interim Guidelines, Lake Powell's operations in water year 2021 will be governed by the Upper Elevation Balancing Tier, with an initial water year release volume of 8.23 maf and the potential for an April adjustment to equalization or balancing releases in April 2021. Based on the most probable forecast, this September 24-Month Study projects an April adjustment to balancing releases and Lake Powell is projected to release 9.0 maf in water year 2021.

The August 2020 24-Month Study projected the January 1, 2021 Lake Mead elevation to be above 1,075 feet and below 1,090 feet. Consistent with Section 2.B.5 of the Interim Guidelines, the Intentionally Created Surplus (ICS) Surplus Condition is the criterion governing the operation of Lake Mead for calendar year 2021. In addition, Section III.B of Exhibit 1 to the Lower Basin Drought Contingency Plan (DCP) Agreement will also govern the operation of Lake Mead for calendar year 2021.

The 2021 operational tier determinations for Lake Powell and Lake Mead will be documented in the 2021 AOP, which is currently in development.

The 2020 AOP is available for download at:
https://www.usbr.gov/lc/region/g4000/aop/AOP20.pdf.
The Draft 2021 AOP is available for download at:
https://www.usbr.gov/lc/region/g4000/AOP2021/2021AOP_2020-08-28_Consultation-3.pdf.
The Interim Guidelines are available for download at:
https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf.
The Colorado River DCPs are available for download at:
https://www.usbr.gov/lc/region/programs/dcp.html.

Fontenelle Reservoir – As of September 1, 2020, the Fontenelle Reservoir pool elevation is 6499.45 feet, which amounts to 85 percent of live storage capacity. Inflows for the month of August totaled 41,000 acre-feet (af) or 54 percent of average.

As the forecast continues to show inflows into Fontenelle dropping through the Fall we anticipate lowering releases. Consequently, releases were lowered to 1,100 cfs on August 24th.

The September final forecast for unregulated inflows into Fontenelle for the next three months projects below average conditions. September, October and November inflow volumes amount to 35,000 af (76 percent of average), 40,000 af (82 percent of average), and 40,000 af (95 percent of average), respectively.

The final total water supply of the April through July inflow volume into the Fontenelle Reservoir is 677,000 acre-feet (93 percent of average).

The August 27, 2020, Fontenelle Working Group meeting minutes are available online on USBR's website at https://www.usbr.gov/uc/water/crsp/wg/ft/ftcurrnt.html. The next Fontenelle Working Group meeting is scheduled for April 22, 2021. The meeting will be held at 10:00am at the Seedskadee National Wildlife Refuge. Depending on the COVID-19 (Coronavirus) situation we may need to change it to a virtual meeting using WebEX. The Fontenelle Working Group is an open public forum for information exchange between Reclamation and other parties associated with the operation of Fontenelle Reservoir.

Flaming Gorge -- As of September 2, 2020 Flaming Gorge Reservoir pool elevation is 6027.03 feet, which amounts to 86 percent of live storage capacity. Unregulated inflows for the month of August is approximately 35,000 acre-feet, which is only 40% of the average August unregulated inflow volume and corresponds to an 84% exceedance.

The August observed unregulated inflow is a Moderately Dry hydrologic classification. Therefore, operations will change from an Average to Moderately Dry hydrologic condition operation per the Flaming Gorge 2020-2021 Operation Plan.

Current releases are being targeted for the summer base flow period and Colorado Pikeminnow proposed flow request. Targeted flows at the USGS Jensen gage with the combination of Flaming Gorge Dam releases and Yampa River flows are estimated to be between 1,800 cfs to 2,000 cfs or within the +/- 40% of calculated base flows at the Jensen Gage, Reach 2. This will result in daily average releases from the Flaming Gorge Dam of 1,600 cfs by September 7.

The September final forecast for unregulated inflows into Flaming Gorge for the next three months projects below average conditions. September, October and November forecasted unregulated inflow volumes amount to 38,000 af (69 percent of average), 45,000 af (76 percent of average) and 50,000 af (98 percent of average), respectively.

Reclamation is planning to hold the next Flaming Gorge Working Group meeting on March 18, 2021 in Price, Utah or via WebEx. The place and in-person meeting TBD. The Flaming Gorge Working Group is an open public forum for information exchange between Reclamation and the stakeholders of Flaming Gorge Dam. The public is encouraged to attend and comment on the operations and plans presented by Reclamation at these meetings. Meeting notes from past Working Group meetings are posted on the Working Group webpage. For more information on this group and these meetings please contact Dale Hamilton at 801-379-1186.

Aspinall Unit Reservoirs – As of September 3, 2020 releases from Crystal Dam are approximately 1,450 cfs. Gunnison Tunnel diversions for irrigation are approximately 1,050 cfs through the Gunnison Tunnel. The capacity of the Gunnison Tunnel is approximately 1,150 cfs. Flows in the Black Canyon are about 400 cfs.

Blue Mesa did not fill in 2020. On June 19, 2020, the elevation of Blue Mesa was 7492.87 feet above sea level corresponding to a live storage of 603,855 af (72.8 percent of capacity). This was the peak elevation achieved after the spring runoff during 2020. As of September 3, 2020, the elevation of Blue Mesa was 7477.93 feet corresponding to a live storage of 491,020 af (59.2 percent of capacity).

The unregulated inflow volume in August to Blue Mesa was 26,033 af (41 percent of average). Unregulated Inflow volumes forecasted for Blue Mesa for the next three months (September, October and November) are projected to be: 24,000 af (63 percent of average), 26,000 af (68 percent of average) and 24,000 af (77 percent of average), respectively. The September 24-Month Study is reflective of these new forecasts. The 2020 water year forecasted unregulated inflow volume is projected to be 621,400 af (65 percent of average).

The Aspinall Unit Working Group is an open public forum for information exchange between Reclamation and the stakeholders of the Aspinall Unit. The public is encouraged to attend and comments on the operations and plans presented by Reclamation at these meetings. Meeting notes from past working Group meetings are posted on the Working Group webpage. For more information on this group and these meetings please contact Erik Knight in the Grand Junction Area Office at (970) 248-0629.

The next scheduled working group meeting will be in January of 2021, but no date has been set at this time. More details will be posted as they become available.

Navajo Reservoir – On September 13th, the daily average release rate from Navajo Dam was approximately 800 cfs while reservoir inflow was averaging approximately 481 cfs. The water surface elevation was 6045.57 feet above sea level. At this elevation the live storage is 1.17 maf (69 percent of live storage capacity) and the active storage is 0.513 maf (49 percent of active storage capacity). NIIP is diverting 407 cfs. The San Juan-Chama project is diverting 11 cfs from the basin above the reservoir. The river flow measured at the Animas River at Farmington USGS gage was at 144 cfs. River flow at the San Juan River at Four Corners USGS gage was 812 cfs.

Releases from Navajo Dam are made for authorized purposes of the Navajo Unit and are pursuant to the Record of Decision for the Navajo Reservoir Operations.

Preliminary modified unregulated inflow (MUI) into Navajo was -14,997 af. (The MUI is a calculated number, adjusted for San Juan Chama diversions and change in storage at Vallecito reservoir. The MUI can be negative in very hot dry months when the change in storage at Vallecito is much greater than the observed inflow into Navajo. The observed inflow into Navajo for the month of August was 16,347 af.) Calculated evaporation for the month was 3,370 af. Navajo had a net storage loss of 83,009 af in August.

The most probable inflow forecast for September, October, and November, is 10,000 af (23% of average), 25,000 af (53% of average), and 25,000 af (75% of average), respectively.

Releases for the fall and winter will be made to target the San Juan River Recovery Implementation Program's recommended downstream baseflow range of 500 cfs to 800 cfs through the critical habitat reach of the San Juan River (Farmington, NM to Lake Powell). Current modeling shows the release will most likely vary between 500 and 900 cfs to accomplish this for the remainder of summer.

Reclamation conducts Public Operations Meetings three times per year to gather input for determining upcoming operations for Navajo Reservoir. Input from individuals, organizations, and agencies along with other factors such as weather, water rights, endangered species requirements, flood control, hydro power, recreation, fish and wildlife management, and reservoir levels, will be considered in the development of these reservoir operation plans. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the San Juan River and Navajo Reservoir. The next meeting will be conducted either (in-person or virtually, depending on the local and governmental guidance at the time) in late January of 2021.

Glen Canyon Dam / Lake Powell

Current Status

The unregulated inflow volume to Lake Powell during August was negative 20 thousand acre-feet (kaf) (-4 percent of average). The observed physical inflow for Powell is 200,500 AF, which means that upstream storage and evaporation amounted to ~220,000 AF of volume as compared against the total calculation of observed inflows. The release volume from Glen Canyon Dam in August was 833 kaf. The end of August elevation and storage of Lake Powell were 3599.72 ft (100 feet from full pool) and 11.72 maf (48 percent of full capacity), respectively.

Current Operations

The operating tier for water year 2020 (September 2019 through October 2020) was established in August 2019 as the Upper Elevation Balancing Tier, consistent with Section 6.B of the Interim Guidelines. Consistent with Section 6.B of the Interim Guidelines, Lake Powell's operations in water year 2020 will be governed by the Upper Elevation Balancing Tier. With an 8.23 million acre-foot (maf) release from Lake Powell in water year 2020, the April 2020 24-Month Study projects the end of water year elevation at Lake Powell to be above 3,575 feet, and the end of water year elevation at Lake Mead to be above 1,075 feet. Therefore, in accordance with Section 6.B.1 of the Interim Guidelines, Lake Powell will continue to release 8.23 maf through the remainder of water year 2020.

In September, the release volume will be approximately 602 kaf, with fluctuations anticipated between about 7,057 cfs in the nighttime to about 12,474 cfs in the daytime, and consistent with the Glen Canyon Dam, Record of Decision (dated December 2016). The anticipated release volume for October is 640 kaf with daily fluctuations between approximately 6,555 cfs and 12,315 cfs. The expected release for November is 640 kaf.

In addition to daily scheduled fluctuations for power generation, the instantaneous releases from Glen Canyon Dam may also fluctuate to provide 40 megawatts (mw) of system regulation. These instantaneous release adjustments stabilize the electrical generation and transmission system and translate to a range of about 1,200 cfs above or below the hourly scheduled release rate. Under system normal conditions, fluctuations for regulation are typically short lived and generally balance out over the hour with minimal or no noticeable impacts on downstream river flow conditions.

Releases from Glen Canyon Dam can also fluctuate beyond scheduled releases when called upon to respond to unscheduled power outages or power system emergencies. Depending on the severity of the system emergency, the response from Glen Canyon Dam can be significant, within the full range of the operating capacity of the power plant for as long as is necessary to maintain balance in the transmission system. Glen Canyon Dam currently maintains 30 mw (approximately 800 cfs) of generation capacity in reserve in order to respond to a system emergency even when generation rates are already high. System emergencies occur fairly infrequently and typically require small responses from Glen Canyon Dam. However, these responses can have a noticeable impact on the river downstream of Glen Canyon Dam.

Inflow Forecasts and Model Projections

The forecast for water year 2020 unregulated inflow to Lake Powell, issued on September 1, 2020, by the Colorado Basin River Forecast Center, projects that the most probable (median) unregulated inflow volume this year will be 6.01 maf (55 percent of average).

There is significant uncertainty regarding next season's snowpack development and resulting runoff into Lake Powell. Reclamation updates the minimum and maximum probable forecasts four times a year: January, April, August and October. The August forecast for water year 2021 ranges from a minimum probable of 5.2 maf (48 percent of average) to a maximum probable of 16.5 maf (152 percent of average) with a most probable water year unregulated inflow forecast of 8.7 maf (80 percent of average). There is a 10 percent chance that inflows could be higher than the current maximum probable forecast and a 10 percent chance that inflows could be lower than the minimum probable forecast.

Based on the current forecast of 8.5 maf unregulated inflow, the September 24-Month Study projects Lake Powell elevation will end water year 2021 near 3,584.12 feet with approximately 10.30 maf in storage (42 percent of capacity). Note that projections of elevation and storage for water year 2021 have some uncertainty at this point in the season. Projections of end of water year 2021 elevation and storage using the minimum and maximum probable inflow forecast from August 2020 are 3,567.54 feet (12.14 maf, 37 percent of capacity) and 3,656.19 feet (18 maf, 74 percent of capacity), respectively. Under these scenarios, there is a 10 percent chance that inflows will be higher, resulting in higher elevation and storage, and 10 percent chance that inflows will be lower, resulting in lower elevation and storage. The annual release volume from Lake Powell during water year 2021 is projected to be 9.0 maf under the September most probable

scenario, and 8.23 maf under the August minimum and maximum probable inflow scenarios.

Upper Colorado River Basin Hydrology

Upper Colorado River Basin regularly experiences significant year to year hydrologic variability. During the 20-year period 2000 to 2019, however, the unregulated inflow to Lake Powell, which is a good measure of hydrologic conditions in the Colorado River Basin, was above average in only 4 out of the past 19 years. The period 2000-2019 is the lowest 20-year period since the closure of Glen Canyon Dam in 1963, with an average unregulated inflow of 8.76 maf, or 81 percent of the 30-year average (1981-2010). (For comparison, the 1981-2010 total water year average is 10.83 maf.) The unregulated inflow during the 2000-2019 period has ranged from a low of 2.64 maf (24 percent of average) in water year 2002 to a high of 15.97 maf (147 percent of average) in water year 2011. In water year 2018 unregulated inflow volume to Lake Powell was 4.6 maf (43 percent of average), the third driest year on record above 2002 and 1977. Under the current most probable forecast, the total water year 2020 unregulated inflow to Lake Powell is projected to be 6.01 maf (55 percent of average).

At the beginning of water year 2020, total system storage in the Colorado River Basin was 31.64 maf (53 percent of 59.6 maf total system capacity). This is an increase of 3.64 maf over the total storage at the beginning of water year 2019 when total system storage was 28 maf (47 percent of capacity). Since the beginning of water year 2000, total Colorado Basin storage has experienced year to year increases and decreases in response to wet and dry hydrology, ranging from a high of 94 percent of capacity at the beginning of 2000 to the now current level of 53 percent of capacity at the beginning of water year 2020. Based on current inflow forecasts, the current projected end of water year total Colorado Basin reservoir storage for water year 2020 is approximately 31.63 maf (53 percent of total system capacity). The actual end of water year 2020 system storage may vary from this projection, primarily due to uncertainty regarding this season’s runoff and reservoir inflow.

TO ALL ANNUAL OPERATING PLAN RECIPIENTS

MAILED FROM UPPER COLORADO REGION
WATER RESOURCES GROUP
ATTENTION UC-430
125 SOUTH STATE STREET, ROOM 8100
SALT LAKE CITY, UT 84138-5571
PHONE 801-524-3709

****

RUNOFF AND INFLOW PROJECTIONS INTO UPPER BASIN RESERVOIRS ARE PROVIDED BY
THE COLORADO RIVER FORECASTING SERVICE THROUGH THE NATIONAL WEATHER SERVICES'S
COLORADO BASIN RIVER FORECAST CENTER AND ARE AS FOLLOWS

:	Obs			sep	Forecast				
:	may	jun	jul	aug	%Avg	sep	oct	nov	apr-jul	%Avg
GLDA3:Lake Powell	1541	1453	290	-19.9	-99%:	210/	350/	360/	3759/:	53%
GBRW4:Fontenelle	161	288	145	41	54%:	35/	40/	40/	677/:	93%
GRNU1:Flaming Gorge	218	343	158	32	36%:	38/	45/	50/	833/:	85%
BMDC2:Blue Mesa	153	139	46	26	41%:	24/	26/	24/	388/:	57%
MPSC2:Morrow Point	162	142	47	27	40%:	25/	28/	26/	405/:	55%
CLSC2:Crystal	174	148	48	27	36%:	27/	32/	30/	429/:	51%
TPIC2:Taylor Park	24	23	8.5	4.0	39%:	4.5/	5.0/	4.0/	63/:	64%
VCRC2:Vallecito	66	38	11.2	5.4	27%:	7/	9/	6/	131/:	68%
NVRN5:Navajo	199	65	3.3	-15.0	-99%:	10/	25/	25/	347/:	47%
LEMC2:Lemon	18.9	7.8	2.3	1.38	28%:	1.3/	1.5/	1/	32/:	58%
MPHC2:McPhee	55	18.4	8.9	7.9	50%:	5.0/	4.0/	3.5/	94/:	32%
RBSC2:Ridgway	17.0	19.1	10.4	3.8	26%:	5.0/	5.0/	4.0/	51/:	50%
YDLC2:Deerlodge	590	319	28	6.3	25%:	12/	25/	30/	1114/:	90%
DRGC2:Durango	120	90	28	14.2	37%:	13.0/	17.0/	14.0/	265/:	64%